

<b>Change Number</b> M-16-98-05	<b>Federal Facility Agreement and Consent Order Change Control Form</b> <small>Do not use blue ink. Type or print using black ink.</small>	<b>Date</b> 2/1/99
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<b>Originator</b> Bob McLeod	<b>Phone</b> 372-0096
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**Class of Change**

[ ] I - Signatories                      [X] II - Executive Manager                      [ ] III - Project Manager

**Change Title**

Revision to remedial Action Milestones, 300-FF-1 Operable Unit

**Description/Justification of Change**

This change request deletes milestone M-16-03D and replaces it with two new milestones. The first new milestone, M-16-03E includes remediation of the 300-FF-1 Operable Unit waste sites excluding Burial Ground 618-4. The second new milestone, M-16-03F includes complete remediation of the 618-4 Burial Ground. The following milestones are to be deleted or added to the Hanford Federal Facility Agreement and Consent Order as applicable. Additional description and justification details are attached.

<u>Number</u>	<u>Milestone</u>	<u>Due Date</u>
M-16-03D	COMPLETE REMEDIATION OF THE WASTE SITES IN THE 300 FF 1 OPERABLE UNIT, AS DEFINED IN THE REMEDIAL DESIGN REPORT/REMEDIAL ACTION WORK PLAN FOR THE 300 FF 1 OPERABLE UNIT (DOE/RL-96-70)	May 1999
M-16-03E	COMPLETE REMEDIATION OF THE WASTE SITES IN THE 300-FF-1 OPERABLE UNIT (EXCLUDING THE 618-4 BURIAL GROUND), TO INCLUDE EXCAVATION, VERIFICATION, AND BACKFILLING	December 2000
M-16-03F	COMPLETE EXCAVATION, VERIFICATION, SOIL AND DRUMMED WASTE TREATMENT AND DISPOSAL, AND BACKFILLING OF THE 618-4 BURIAL GROUND	TBD

**Impact of Change**

These milestones reflect changing conditions that were not anticipated to remediate the 300-FF-1 Operable Unit. The milestones reflect completion of remedial action for the 300-FF-1 Operable Unit.

**Affected Documents**

- Hanford Federal Facility Agreement and Consent Order Action Plan Appendix D. Major and Interim Milestones
- Remedial Design Report/Remedial Action Work Plan for the 300-FF-1 Operable Unit (DOE/RL-96-70)

<b>Approvals</b>		
DOE	 Date: 3/19/99      X Approved      Disapproved	
EPA	 Date: 3/23/99      X Approved      Disapproved	
Ecology	N/A Date: _____      Approved      Disapproved	

## **Description of 300-FF-1 Operable Unit Activities Causing Schedule Slippage**

### **General Schedule and Milestone Information**

The *300-FF-1 Remedial Design Report/Remedial Action Work Plan*, DOE/RL-96-70, Rev. 0 defines initial waste site quantity estimates directly from the 300-FF-1 remedial design. The Remedial Design Report/Remedial Action Work Plan (RDR/RAWP) schedule durations were based on design quantities and productivity rates commensurate with Remedial Action and Waste Disposal project overall shipping and disposal capacities. The RDR/RAWP states that "the schedule for performing the remedial actions will be dictated by the remedial action subcontractor (RAS) design package. The minimum scheduling requirements the RAS has to meet are to initiate remediation of the Process Trenches first and complete excavation of the 618-4 Burial Ground by February 28, 1998. The schedule for initiation of remediation activities at the remaining waste sites will be developed by the RAS based on an excavation completion date of May 28, 1999. The RAS will also be given minimum productivity rates." As such, the remedial action subcontract was bid with production rates and milestones that facilitated meeting the 300-FF-1 Tri-Party Agreement milestones.

The project baseline schedule as included in the FY 98 detailed work plan (DWP) reflected RAS bid quantities, work sequencing, and durations to meet said milestones. A number of unanticipated issues affecting work sequencing and duration at several 300-FF-1 Operable Unit waste sites have occurred and will continue as described below. Attached is the revised baseline project schedule supporting the new TPA milestones. The revised project schedule is the FY 99 DWP schedule as amended by approved baseline change proposals (BCP). The schedule shows quantities, sequencing, and durations updated by the project to reflect actual durations to date and estimates based on lessons learned while remediating the 300-FF-1 Operable Unit. In addition, a plume has been discovered in the North Process Pond which was not included in the FY 99 DWP or subsequent approved BCP's. A month has been included in Milestone M-16-03E to address the plume. In addition, the preliminary draft 618-4 Burial Ground drum treatment and disposal plan identifies several potential treatment options some of which may take longer than the current baseline schedule.

Included with this description is a 300-FF-1 Schedule that compares the original RDR/RAWP schedule activities to the current baseline schedule activity durations. Note that the current baseline schedule activity durations do not include time for 1) excavating the remaining plume in the North Process Pond, 2) potential plumes in the South Process Pond, and 3) potential delays due to cultural resources in Landfill 1A. Durations for these unknowns are depicted in the comparison schedule as dashed lines. (See details below) In addition, a current project schedule showing actual and estimated durations and activity sequencing is included to help interpret the comparison schedule. Estimates for these durations are summarized in Table 1. In reading the comparison schedule, the thin lines represent the original RDR/RAWP durations and sequencing of activities. The dark thick lines represent the current baseline schedule.

New Milestone M-16-03E is December 2000. It is recognized that the potential for additional delays exist and that documentation of good cause for milestone extension will be maintained by DOE/RL should conditions require that this milestone be revised in the future. New Milestone M-16-03F is a "To Be Determined" based on the unknown drummed waste treatment technology and associated duration as described below. This milestone date will be set at such time that the path forward to treat and dispose of the 618-4 Burial Ground uranium drums is determined and agreed upon by the Tri-Parties.

### Waste Site Specific Activities Affecting Schedule

#### Burial Ground (618-4)

- Status - Excavation started October 29, 1997 with approximately 50% of waste excavation completed May 13, 1998. Stabilized drums staged in the burial ground area of contamination.
- Planning Level B - Due to unknown hazards to workers identified during removal of overburden in early November 1997 coupled with unknown hazards identified in Landfill 1D at the same time, site excavation was temporarily stopped and work replanned to a higher safety level. This process took 16 working days to plan out and obtain necessary resources to implement.
- Level B Productivity - Reduced productivity delay due to changed conditions (Level D to Level B operations). Level B operations are much less productive due to the more stringent health and safety protocols. The level of PPE was upgraded for worker safety to include excavation of unknown/unexpected contaminants, primarily liquids in drums, asbestos, lead and barium contaminated soils. The duration increase based on Level B productivity levels is 40 days.
- Stockpile Anomalies - Due to the pervasive nature of the lead and barium contaminated soil, the sampling sequence has necessarily been revised such that haul containers cannot be filled until stockpiles are cleared. This result in inefficiencies from double handling stockpiles that do not pass TCLP for RCRA metals and numerous changes in work sequence (East end to West end) while stockpiles are being analyzed. This has further reduced productivity beyond what was anticipated during the Level B planning effort. It is estimated to impact the schedule by 18 days overall.
- 338 Drums Excavated and Stabilized - The schedule impact to excavate and stabilize a partial cache of 338 drums of potentially pyrophoric uranium tailings/oil and uranium oxide powders is 18 days. These drums were not expected to be found in the 618-4 Burial Ground.
- Excavate and Stabilize Remaining 1200 Drums - The impact to the schedule to excavate and stabilize the remaining estimated 1,200 drums in the burial ground is 57 days. The estimate is based on the stabilization rate for the drums excavated to date, the dig face information and Ground Penetrating Radar data. Again, these drums were not originally anticipated to be found in the burial ground at the time the milestone was established.
- Drummed Waste Treatment - Treatment and disposal planning for the drummed waste is underway. Several technologies are being evaluated. None of the

technologies are viable for deployment at this time, but one or more could become viable within a few months to several years, after additional analysis, testing and /or permitting/waivers. Preliminary treatment schedules to implement the technologies range from several months to almost a year. Once treatment and disposal planning is complete and EPA and RL have agreed to the drummed waste treatment and disposal technology, the date for milestone M-16-03F, currently a "To Be Determined" date, can be established.

Landfill 1D (628-4)

- Status - Excavation completed, lead contaminated soil stockpiled in AOC waiting treatment variance. Soils in containers at ERDF scheduled for treatment in FY 99.
- Planning Level B - Due to unknown hazards to workers identified during removal of overburden in early November 1997 coupled with unknown hazards identified in Burial Ground 618-4 at the same time, site excavation was replanned to work to a higher safety level. This process took 16 working days to plan out and obtain necessary resources to implement.
- Level B Productivity - Delay caused by reduced productivity due to changed conditions (Level D to Level B operations). Level B operations are much less productive due to the more stringent health and safety protocols. The level of PPE was upgraded for worker safety to include excavation of unknown/unexpected contaminants, primarily liquids in drums such as acid wastes and lead contaminated soils.
- Volume Adjustment - The total quantity excavated has increased by approximately 2,000 tons because contaminated materials were buried deeper than originally estimated during the remedial design. The total Level B and volume increase duration is 39 days.

Landfill 1A (300-49)

- Status - Waste site excavation not yet initiated. One test trench was excavated between waste site trenches to try and determine the potential to unearth cultural resources. No cultural resources were identified in the test trench. However, excavation of this waste site still has a very high potential to unearth cultural resources because known cultural resources exist north and south of the site. Excavation of this site will be monitored by Native Americans. A one-month automatic delay is required if cultural materials are unearthed by procedure. A potential of several months delay is likely if cultural resources are identified. These delays would require demobilization/remobilization, productivity loss associated with special excavation procedures, and actual delay to restart excavation while Native Americans and other interested parties determine how to address the find.
- Level B Productivity - Delay caused by reduced productivity due to changed conditions (level D to level B operations). Level B operations are much less productive due to the more stringent health and safety protocols. The level of PPE will be upgraded for worker safety to include excavation of unknown/unexpected

## Continuation - Description/Justification of Change for M-16-98-05

contaminants based on what was found in Burial Ground 618-4 and Landfill 1D. The Level B duration is estimated to take 70 days to complete.

### Landfill 1B (300-50)

- Status - Excavation not yet initiated.
- Level B Productivity - Reduced productivity delay due to changed conditions (Level D to Level B operations). Level B operations are much less productive due to the more stringent health and safety protocols. The level of PPE will be upgraded for worker safety to include excavation of unknown/unexpected contaminants based on what was found in Burial Ground 618-4 and Landfill 1D. The Level B duration is estimated to take 40 days to complete.
- Volume Adjustment - Based upon a ground penetrating radar survey performed during remediation, the footprint of the waste site was decreased by approximately 50% resulting in a 50% reduction of planned excavated quantities. This reduces the level B duration of 40 days to 20 days.
- Verification and Backfill - Based on previous discussions with EPA, the scope of new Tri-Party Agreement Milestone M-16-03E must now include verification and backfill of waste sites in addition to excavation activities.
- Verification and backfill is completed in parallel on all waste sites affected except the last site remediated which is Landfill 1B. Therefore, an additional 103 days is required to be added to new Milestone M-16-03E for this change in scope. Note this additional time does not result in an extension to the schedule, it merely reflects when the additional scope items will be completed.

### North Process Pond (316-2)

- Status - Excavation was initiated at the North Process Pond on May 5, 1998 and partial remediation was completed on January 25, 1999.
- Volume Adjustment - As stated earlier, the initial site volume was based on the RDR/RAWP design estimate. Part of the remediation process included excavation of test pits and trenches in the berms, dikes and scrapings area of the North Process Pond to better refine the estimated volume to excavate from these portions of the pond. An assessment was made and presented to EPA in a Unit Manager's Meeting and subsequent volume and schedule adjustments were made to the FY 99 DWP schedule. Although an actual volume reduction had been estimated, unexpected quantities of contaminated soil (plumes) were identified and partially excavated and disposed. The incremental increase to the duration of the overall North Process Pond schedule has been 28 days to date. One month has been allocated to Milestone M-16-03E to address plume quantities/durations not yet approved via BCP.

South Process Pond (316-2)

- Status - Excavation was initiated on January 26, 1999 and is ongoing.
- Volume Adjustment - As stated earlier, the initial site volume was based on the RDR/RAWP design estimate. Part of the remediation process included excavation of test trenches in the berms and dikes of the South Process Pond to better refine the estimated volume that needs to be excavated from these portions of the pond. An assessment was made as with the North Process Pond and subsequent volume and schedule adjustments were made to the current baseline schedule. The South Process Pond volume was dramatically increased based on the test pits and trenches analysis. However, the duration required to excavate this increased quantity is addressed by a temporary increase in site productivity. However, the current baseline schedule does not reflect an adjustment for potential plumes. Based on the history at the North Process Pond, it is expected that plumes will be identified that requires remediation.

**Activities Causing Schedule Slippage for 300-FF-1 Remedial Action**

**Table 1. Activities That Affect New Milestone M-16-03E**

WASTE SITE	Original Duration (Excavate only)	Planning Level "B"	Level "B" Productivity	Stockpiles Anomalies	338 Drums Excavate & Stabilize Drums	Excavate & Stabilize Remaining 1200 Drums	Volume Adjust	Total Revised Durations	New Durations
(Working Days)									
Burial Ground	88	16	40	18	18	57	0	149	237
Landfills	65	0	96	5	0	0	-20	81	146
North Process Pond	150	0	0	0	0	0	28	28	178
South Process Pond	101	0	0	0	0	0	0	0	101
<b>Totals</b>	<b>404</b>	<b>16</b>	<b>136</b>	<b>23</b>	<b>18</b>	<b>57</b>	<b>8</b>	<b>258</b>	<b>662</b>

**Footnotes and Assumptions:**

1. Table only includes activities that are known to delay schedule. Activities with potential to delay the schedule such as potential plumes in the South Process Pond and cultural resource impacts from Landfill 1A are not included in the table.
2. Landfills includes activities from Landfills 1A, 1B and 1D summarized for each category
3. See Description of 300-FF-1 OU Activities Causing Schedule Slippage for specific Details
4. Assume project will increase productivity at South Process Pond to address significant increase in quantities. Therefore, no additional schedule slippage is allocated.

Act ID	Activity Description	Curr Dur	Early Start	Early Finish	FY96	FY97	FY98	FY99	FY00	FY01
<b>MAJOR PROJECT MILESTONES</b>										
50	Issue ROD for 300-FF-1	0		17JUL96A	◆					
2200	Project Completion	0		20DEC00					▲	◆
<b>PREPARE RD RPT / RA WRK PLAN (RDR/RAWP)</b>										
100	Prepare Draft RDR/RAWP	68	06MAY96A	12AUG96A	▶					
200	Revise & Issue (Concurrent Reg./DOE Review)	23	13AUG96A	13SEP96A	▶					
300	Revise & Issue (RDR/RAWP)	69	16SEP96A	28FEB97A		▶				
<b>PROCURE RA SUBCONTRACTOR</b>										
400	Prepare / Issue Request For Proposal	76	15APR96A	01AUG96A	▶					
500	Bid Period	34	01AUG96A	18SEP96A	▶					
600	Evaluate Bids	32	19SEP96A	25OCT96A	▶					
630	Bidders Prepare "Best Revised Offer"	21	16DEC96A	16JAN97A		▶				
640	Evaluate "Best Revised Offer"	31	17JAN97A	03MAR97		▶				
700	Award RA Subcontract	0		04MAR97		◆				
<b>IMPLEMENT REMEDIATION</b>										
800	Prepare / Approve RAS Submittals	44	01APR97A	02JUN97A		▶				
900	Mobilization & Facility Construction	34	01MAY97A	18JUN97A		▶				
1000	Complete Readiness Assessments	0		18JUN97A		◆				
1100	Initiate Excavation	0	18JUN97A			◆				
1150	Excavate Test Pits & Trenches	60	18JUN97A	12SEP97A		▶				
1200	Excavate Process Trenches	141	07JUL97A	03FEB98A		▶				
1250	Excavate Burial Ground 618-4 (Phase I)	131	29OCT97A	13MAY98A		▶				
1260	Excavate Burial Ground 618-4 (Phase II)	168	01OCT99*	31MAY00				▶		
1270	Drum Treatment and Disposal	95	05JUL00*	15NOV00				▶		
1300	Excavate North Process Pond	174	05MAY98A	11JAN99			▶			
1350	Excavate South Process Pond & Retired FB Pond	99	28JAN99A	17JUN99			▶			
1500	Excavate Landfills	657	30OCT97A	05JUL00			▶			
1700	Complete Waste Removal	0		05JUL00			◆			
1750	Prep/Issue BG 618-4 Excavation Rpt	128	28APR98A	28AUG98A			▶			
1800	Restoration (Inc. Ver. Pkg./Backfill)	702	04FEB98A	29NOV00			▶			
1900	Preliminary Demobilization	13	05JUL00*	21JUL00			▶			
1925	Spring/Fall Revegetation	532	12OCT98A	13DEC00			▶			
1950	Final Demobilization	5	14DEC00*	20DEC00				▶		
<b>RA SITE CLOSURES</b>										
2000	Prepare Site Closure Report (Draft A)	134	06JAN00*	17JUL00				▶		
2050	Regulatory Review Site Closure Report (Draft A)	22	18JUL00	16AUG00				▶		
2100	Revise & Issue Site Closure Report (Rev 0)	32	02OCT00*	14NOV00				▶		

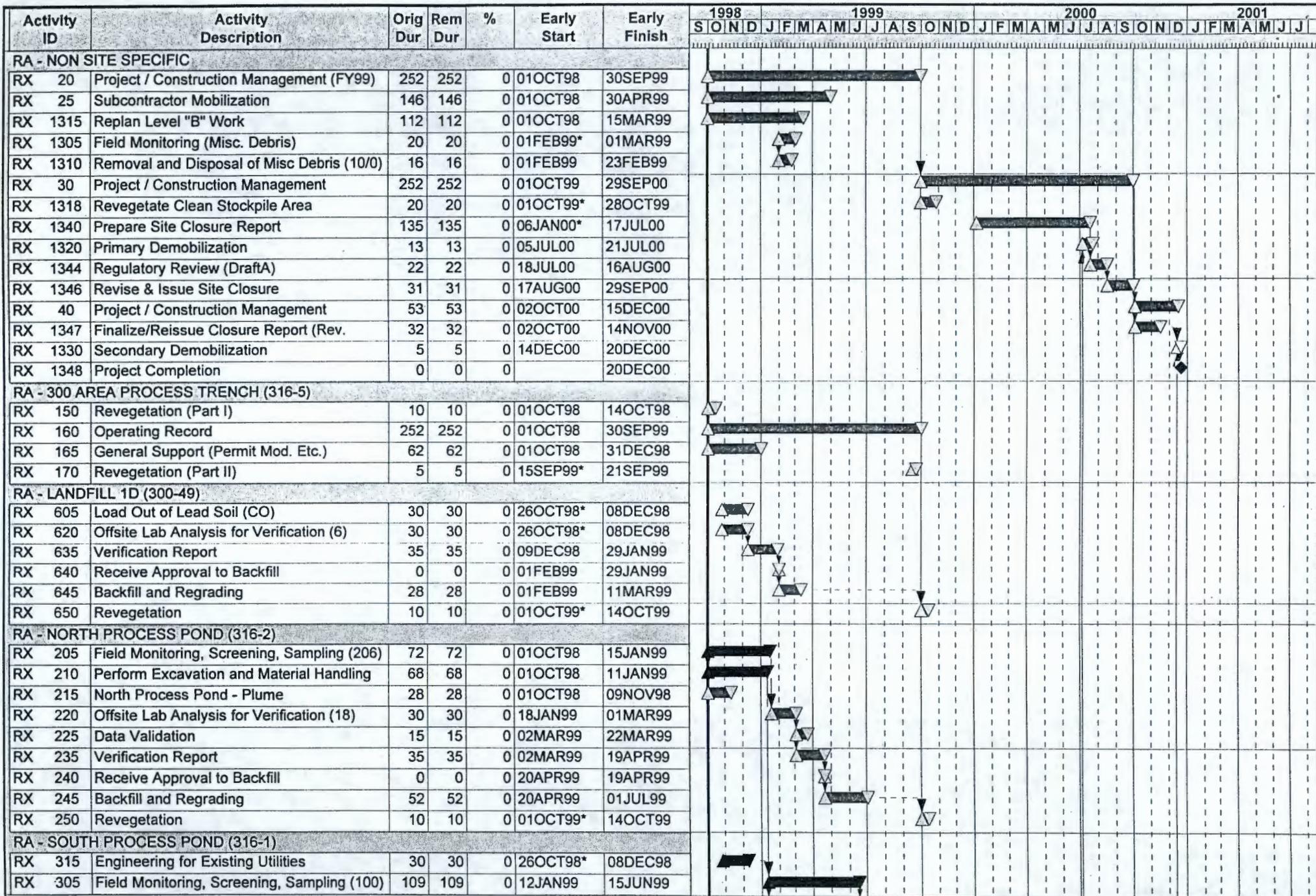
Project Start	28AUG95	▶	Early Bar
Project Finish	27FEB01	▶	Target Bar
Data Date	01FEB99	▶	Progress Bar
Run Date	11MAR99	▶	Critical Activity

3ACT

300-FF-1  
COMPARISON SUMMARY SCHEDULE  
RDR / RAWP TO CURRENT BASELINE

Sheet 1 of 1

Date	Revision	Checked	Approved



Project Start 01OCT98 Early Bar  
 Project Finish 20DEC00 Progress Bar  
 Data Date 01OCT98 Critical Activity  
 Run Date 11MAR99

RT04:RX99

300 AREA Remedial Action  
 Detailed Workplan (FY1999-FY2001)  
 Area Summary Schedule

Sheet 1 of 3

William M. Lambert (373-1509)

Date	Revision	Checked	Approved



